CHLOROETHENE

What is CHLOROETHENE?

Chloroethene is a man-made substance with a mild, sweet odor. Chloroethene exists in a liquid form if kept under high pressure or at low temperatures. Choroethene is a colorless gas at room temperature. It burns easily.

Chloroethene is also called vinyl chloride, chloroethylene, ethylene monochloride and monochloroethylene.

Where is chloroethene found and how is it used?

Chloroethene does not occur naturally. It forms in the environment when other manufactured substances are broken down by certain microorganisms. These substances include trichloroethylene, trichloroethane and tetrachloroethylene.

Most of the chloroethene made in the United States is used to make polyvinylchloride (PVC). PVC is used to make many different plastic products. These include industrial products like pipes, wire and cable coatings. PVC is also used for furniture, automobile upholstery, wall coverings, house wares, construction materials and automotive parts.

How can people be exposed to chloroethene?

You could be exposed to chloroethene through:

Breathing chloroethene if you work where it is made or used. You can also be exposed to chloroethene if your work involves welding PVC pipes or other PVC materials. You can breathe chloroethene near a factory where chloroethene is made or used. Exposure can also result from breathing tobacco smoke.

Drinking water that has been contaminated with chloroethene. Chloroethene has also been found in drinking water carried through PVC pipes. Chloroethene could also enter bottled drinking water from PVC containers. The Food and Drug Administration regulates the amount of chloroethene that can be in these containers.

Eating food packaged in PVC wrappings and containers. The Food and Drug Administration regulates the amount of chloroethene that can be in these wrappings and containers.

How does chloroethene work and how can it affect my health?

Chloroethene causes liver, brain and lung cancer. Symptoms of acute exposure are dizziness, feeling sleepy and/or having a headache. There may be no safe level of exposure to chloroethene.

How is chloroethene poisoning treated?

There is no treatment just for chloroethene. A doctor will treat the symptoms. In all cases of poisoning, medical treatment should be sought and a doctor may prescribe a different treatment depending on circumstances of the poisoning and the symptoms.

What should I do if exposed to chloroethene?

If you are exposed to a substance such as chloroethene, many factors will determine whether harmful health effects will occur and what the type and severity of those health effects will be. These factors include the dose (how much), the duration (how long), the route or pathway by which you are exposed (breathing, eating, drinking, or skin contact), the other chemicals to which you are exposed, and your age, gender, nutritional status, family traits, lifestyle and state of health.

If you breathe chloroethene, get fresh air and rest. Seek medical help.

If you touch chloroethene, rinse your skin with plenty of water or shower. Get medical help.

If you get chloroethene in your eyes, rinse with plenty of water for several minutes. Take out your contact lenses if you can do it easily. Get medical help.

What factors limit use or exposure to chloroethene?

Limit exposure in the workplace by enclosing operations. Local exhaust ventilation should be used at the site of chemical release. If ventilation or enclosure is not used, respirators should be worn. Workers should wear protective clothing. Wash very well right after exposure. Wash again at the end of the work shift.

Avoiding tobacco smoke reduces exposure, since it contains low levels of chloroethene.

Is there a medical test to show whether I've been exposed to chloroethene?

Tests measure levels of chloroethene in breath, urine and body tissues. These tests are not usually available in your doctor's office, but your doctor can send a sample to a special laboratory if necessary.

Because chloroethene leaves the body fairly quickly, these methods are useful only for finding exposures that have occurred within the last few days. These tests can't tell you if adverse health effects will occur from exposure to chloroethene.

Technical information for chloroethene

CAS Number: 75-01-4

Chemical Formula: C_2H_3Cl

Carcinogenicity (EPA): The International Agency for Research on Cancer and EPA has determined that vinyl chloride is a human carcinogen.

MCL (Drinking Water): .002 mg/L.

OSHA Standards: OSHA Permissible Exposure Limit (PEL) is 1 ppm (2.6 mg/m^3) for an 8 hour per day 40-hour work week.

NIOSH Standards: NIOSH recommends that the exposure limit (for a time-weighted average [TWA]) for vinyl chloride in air be the lowest reliably detectable concentration. The maximum amount allowed in any 15-minute period is 5 ppm.

References and Sources

Agency for Toxic Substances and Disease Registry (ATSDR). 2004. *Toxicological profile for chloroethene* (*Draft for Public Comment*). Atlanta, GA: U.S. Department of Health and Human Services.

American Conference of Governmental Industrial Hygienists (ACGIH). 2003. Guide to Occupational Exposure Values. Cincinnati, OH.

NIOSH Pocket Guide to Chemical Hazards. 2003. Atlanta, GA: U.S. Department of Health and Human Services.

http://www.state.nj.us/health/eoh/rtkweb/2001.pdf

http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_d=10021